A Talent Development Programme for Later Maturing Players in UK Rugby League: Research to Practice

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Abstract

Talent identification and development systems (TIDS) are now common practice in youth sport. Research suggests that TIDS often favour the identification and selection of youths who mature earlier than their peers. Based upon this research evidence, alongside a review of their current practices, Leeds Rhinos RLFC have designed and developed a talent development programme for later maturing players within youth rugby league. This article summarises the research, describes how Leeds Rhinos RLFC have implemented the programme and concludes with reflections on the current programme whilst providing suggestions for future applications.

Keywords: talent identification, talent development, maturation, rugby

Introduction

The landscape of professional sport is arguably now the most competitive it has ever been with substantial resources invested within professional sports clubs to achieve success. To achieve this success, professional sporting organisations must be able to identify and develop athletic talent. They can do this through what is known as a Talent Identification and Development System (TIDS) (Cobley & Till, 2015; Rongen, McKenna, Cobley, & Till, 2018). Talent identification refers to the recognition of participants with the *potential* at an early age to become elite performers in the future, whilst talent development involves providing athletes with a suitable learning environment to accelerate or realise their potential (Reilly, Williams, Nevill, & Franks, 2000).

Talent identification and development systems are often designed and implemented in a pyramidal structure. At each stage of a TIDS pathway the number of places available for selection decreases and the developmental support offered within the programme increases (e.g., higher qualified coaches, increased competition, multidisciplinary support [strength and conditioning, nutrition, etc.]). Therefore, talent identification and talent development processes are integrated in practice as athletes selected will ultimately receive greater developmental opportunities. Two factors which are important to this process are the timing (i.e., age) of identification and the number of opportunities (i.e., the number of places) available within the system. Therefore, the TIDS influences when talent identification opportunities are available; when talent development starts, and to how many athletes receive these opportunities.

The processes used to identify players into a TIDS are also important to consider. These processes can include recommendations by coaches or teachers, subjective coach observation within training or competition and/or include objective assessments (e.g., fitness tests). The personnel involved in talent identification can range from scouts and coaches providing subjective evaluations of potential and performance to sport scientists implementing objective assessments; although a collaborative approach is recommended. Another factor to consider within talent identification is the difference between current performance and current potential (Baker, Schorer, & Wattie, 2018). As talent identification focuses upon *'identifying potential'* this is a challenge for practitioners due to the difficulties in observing and measuring potential compared with current performance.

Therefore, although TIDS are now commonly implemented across sports there are a number of important factors that need considering to establish which athletes will obtain these opportunities; when these opportunities are provided, and how players are identified. Within young athletes - where numerous physiological, psychological and social factors can impact upon performance and potential - this becomes a challenging process. This article aims to overview some of the challenges and problems associated with TIDS in rugby

league (evidenced through research) and summarise how the Leeds Rhinos RLFC have implemented change within their TIDS practice to overcome such challenges.

Talent Identification and Development Systems in Rugby League

Rugby league is a high-intensity, intermittent, collision sport whereby performance may be determined by the complex interaction of an individual player's technical, tactical, cognitive and physical qualities (Cupples & O'Connor, 2011). To develop players for the professional game, professional rugby league clubs within the United Kingdom run TIDS, traditionally known as a rugby league academy. The sport's national governing body, the Rugby Football League (RFL), governs the TIDS within rugby league. A professional rugby league academy follows a traditional talent identification and development pyramid model, whereby at each stage of the pathway there is a reduced number of available places for players within the system. But a greater level of resource and developmental opportunities are provided for players at the higher levels of the pathway. Figure 1 illustrates the UK rugby league talent pathway, demonstrating the multiple routes players can take from 14 years-of-age to adulthood. Table 1 summarises the stages of the talent pathway and the developmental opportunities offered within each one.

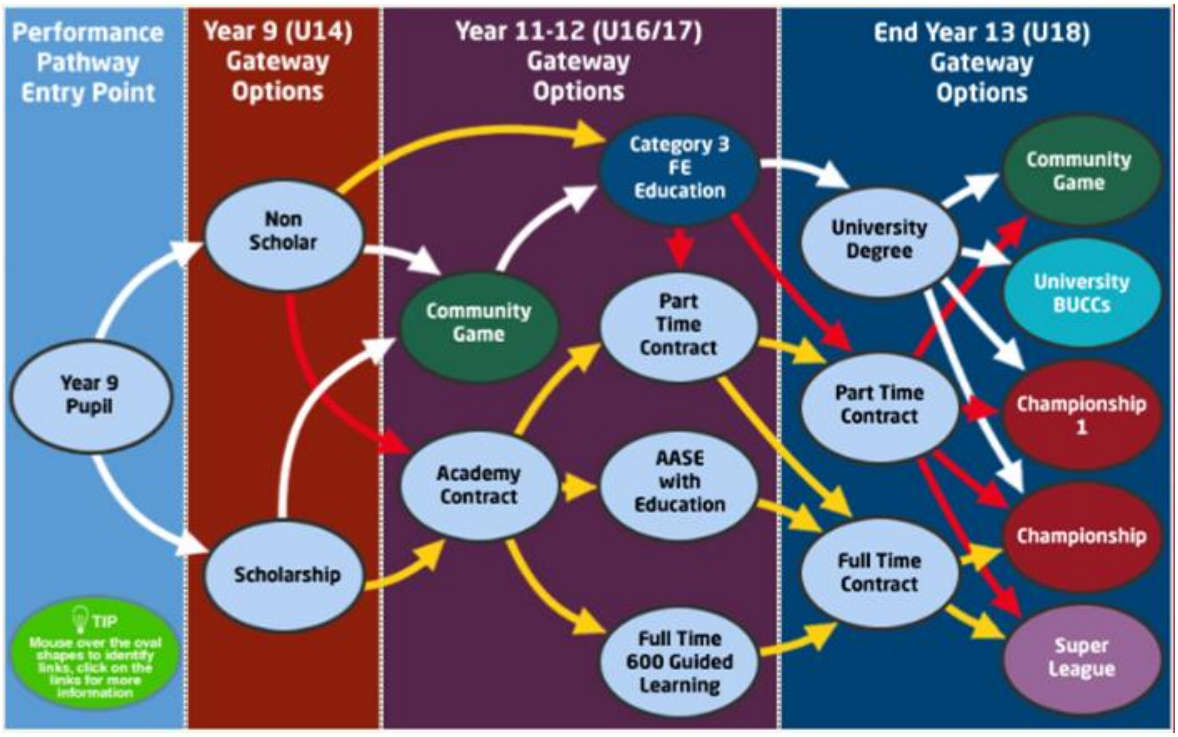

Figure 1. UK Rugby League Talent Pathway (RFL, 2016)

Table 1. Overview of the Rugby League Talent Pathway

Level	Age	Number of Players	Description	Developmental Opportunities
Participation	6 years - Adult	All	Opportunities to participate in rugby league within education and community clubs	Volunteer coaches Play for enjoyment
England Talent Pathway	12 – 14 years	All	Talent development opportunities for all players regardless of current ability run by the professional clubs	Coach education programme Development days run by professional clubs Predominantly delivered by volunteer coaches
Scholarship	14 – 16 years	Maximum 40	Players identified and selected to a professional club scholarship for training and competition purposes. Players still remain in their own environment (education / club)	Train 2-3 times per week Enhanced level of competition (6-8 games per-year) Professional coaches (Part-time) Medical / sport science support
Academy	16 – 19 years	Approx. 10 at U17, U18, U19	Players become contracted (i.e., paid) and train and compete only within the professional club environment. Players are involved in full-time education programmes.	Train 4-5 times per-week Academy competition (23 games per-year) Professional coaches (Full-time) Medical / sport science support
Professional	17 years - Adult	Approx. 25 per club	Adult rugby where players train and compete within a senior professional (full-time) or semi-professional (part-time) team. Part-time players continue education or gain employment	Train 4-6 times per-week Full adult competition (30+ games) Professional coaches (Full-time) Medical / sport science support (level dependent upon playing level)

Broadly, as a late specialisation sport, rugby league employs a later TIDS compared to other team sports (e.g., football; (Noon, James, Clarke, Akubat, & Thake, 2015)). However, a challenge for rugby league academies is that the first talent identification and development stage (i.e., see scholarship on Table 1 or Year 9 'Gateway Options' on Figure 1) predominantly occurs during key periods of growth and maturation (i.e., adolescence, ~14 years-of-age). This provides some key challenges and obstacles for clubs, coaches and scouts to consider within their talent identification and player recruitment processes.

Annual Age Grouping and Maturation: Effect on Talent Identification and Development

Young rugby players are grouped into chronological annual-age categories (e.g., Under 13s) for training and competition purposes. This is similar to education and most other sports within the United Kingdom (UK). The allocation of players into annual-age categories is based on an individual's birth date and the selection start date employed by the sport's governing body (i.e., 1st September in the UK). This process is designed to provide equal competition and developmental opportunities for young players and from a talent identification perspective should allow equal opportunities for athletes to enter a TIDS. However, this annual-age grouping policy fails to consider the chronological age differences between individuals born within the same annual-age category, otherwise known as relative age differences (e.g., 1st September vs. 31st August birth). Furthermore, there can be large differences in the maturity status of individuals of the same chronological age.

Maturation is defined as the timing (i.e., when it occurs) and tempo (i.e., the rate at which it occurs) of progress towards the mature adult state (Malina, Bouchard, & Bar-Or, 2004). The timing of maturation can relate to the age when the maximum gains in growth occur (otherwise known as peak height velocity or 'the growth spurt') or sexual maturation (the development of secondary sexual characteristics, e.g., pubic hair appearance). Within boys, these maturity events generally occur at approximately 14 years-of-age (the same time as talent identification within rugby league). From the early work of Tanner in the 1960s it has been known that boys and girls of the same chronological age can vary considerably in relation to the timing of these events resulting in boys maturing either 'early', 'on-time' or 'late'.

With this large variability in the timing of maturity, comes physical performance advantages. Research has shown that youths who mature early are generally bigger, stronger, faster and more powerful than their later maturing peers (Till & Jones, 2015), providing performance advantages in the sport of rugby. Therefore, based upon the chronological annual-age grouping policy employed within youth sport combined with the differences in maturity status between adolescents of the same age and the relationship

between maturity and physical performance means that youth rugby league players can be (dis)advantaged within talent identification.

(Dis)Advantages in UK Rugby League

Previous research by Till and colleagues (e.g., (Till, Cobley, O'Hara, Chapman, & Cooke, 2010; Till, Cobley, Wattie, et al., 2010)) has evidenced two problems common with TIDS in youth rugby league; 1) Relative Age Effects (RAEs), and 2) Maturity selection biases. Ultimately, both these problems have resulted in the increased selection opportunities for relatively older and earlier maturing male young rugby league players in the UK (and fewer opportunities for the relatively younger and later maturing individuals). It is important to note that the RAE may occur because older boys are more likely to be advanced in maturity (as they are older). However, someone born in August could still be more mature than someone born in September (e.g., a late maturing boy born in September 2004 vs. an early maturing boy born in August 2005).

Although this research has showed these talent identification advantages for relatively older and earlier maturing boys at 13-15 years of age, a range of research has challenged these findings. Firstly, Till et al. (2013) showed that between 13 and 15 years-of-age, those who mature later generally 'catch-up' and sometimes 'overtake' the earlier maturing players in physical performance. Secondly, large inter-individual variability exists in player development during the time of academy programme involvement due to growth and maturation, and the training undertaken during this period (Till, Jones, Darrall-Jones, Emmonds, & Cooke, 2015). Finally, and most interestingly, is that research has shown that relatively younger and later maturing players have a greater attainment rate at the adult professional level in rugby league (Till et al., 2016). Simply, those relatively younger and later maturing players selected to a TIDS during adolescence have a greater chance of making it to a professional level than their relatively older and earlier maturing peers. In addition to this, research examining the participation levels within youth rugby league has shown decreased participation of relatively younger players from 13 years and above (Cobley & Till, 2017).

Overall, this highlights some key considerations for rugby league talent identification and development (and even increasing participation). These include:

- Talent Identification to a rugby league scholarship programme occurs at or around the timing of maturity (~14 years-of-age)
- There is large variability in the maturity status of rugby league players during this time. This can be a difference of ~3.5 years between the later and earlier maturing players within the Under 14s age category.

- There are strong relationships between maturity status and physical qualities (i.e., strength, power, speed and size) that can affect upon rugby performance.
- Rugby league academies can only identify and recruit a maximum of 20 players to their scholarship programme at the Under 15s age category (RFL, 2016).
- Players may be (dis)advantaged in the identification to a scholarship programme based upon their relative age, maturity status, physical performance and the number of spaces available (i.e., 20 per age category).
- These opportunities usually favour the relatively older and earlier maturing player, but such factors may be a disadvantage for long-term career attainment (i.e., becoming a professional)
- Identifying between current performance and potential is very difficult - especially during this key adolescent period.

Leeds Rhinos RLFC TIDS

Although these key considerations are prominent within rugby league academy TIDS, the challenge for practitioners is to implement strategies to overcome such problems. The following section provides an overview of the TIDS that Leeds Rhinos RLFC implement to aid their talent identification and development pathways that includes a focus upon maturity status alongside the implementation of a later maturing talent development programme.

Talent Identification for Scholarship

Each year, Leeds Rhinos RLFC aim to recruit the maximum of 20 players to their Under 15s scholarship programme. The challenge for the club's head of youth development, coaches and scouts is to identify the most appropriate 20 players from approximately 300 players within the region. Three main steps are involved in this process, including:

1. ***Competition Observations*** - Players are observed in competition environments playing for their community club or school on multiple occasions (anywhere between three and eight times), in the Under 14s age category. Subjective ratings are made by the club's coaches and scouts on a player's technical ability, game awareness, physical ability and psychological traits (including communication, resilience and control) within competition. Whilst players are allocated playing positions within their community clubs, observations are made irrespective of position.

2. ***Community Club Visits to Leeds Rhinos RLFC*** – Each community club within the region is invited to attend Leeds Rhinos RLFC one-two times per year. These club

visits have four purposes: 1) to provide a developmental opportunity for all players whereby they train with the club's coaches; 2) to provide coach and parent education on the Leeds Rhinos player development system; 3) for Leeds Rhinos staff to observe players in a different environment to their community club training and competition; and 4) to collect data on the players to inform talent identification decisions. The data collection testing battery includes the anthropometric measures of height, sitting height and body mass to estimate a player's maturity status (i.e., age at peak height velocity - growth spurt). Physical measures include acceleration, lower body strength, power and change of direction. This information is fed back to the community club's coaches following the visit.

3. ***Training Observations via Club Visits –*** Leeds Rhinos coaches attend community clubs for player/coach development sessions. These sessions provide coaches with an opportunity to observe players in their own training environment and occur up to four times per-year.

Following these steps, the club submits a declaration of interest for up to 20 players within a designated window governed by the RFL. Players can then choose to accept this offer. For players with multiple offers they can decide on which club they would like to join. Professional clubs can then submit additional declaration of interests throughout the year for up to a maximum of 20 players. Based upon the number of clubs within the Yorkshire region, approximately 80-100 players from the 300 players observed will be recruited to a professional academy scholarship programme.

Later Maturing TIDS

After all professional rugby league clubs have submitted their declaration of interest, Leeds Rhinos RLFC identified a later maturing group of players from the players not recruited to a professional club's scholarship programme. These decisions were based upon the data collection that was undertaken at the club (specifically maturity status) alongside the competition and training observations, and the club visits. Coaches aimed to identify players with *potential* whose performance may be negatively affected by their maturity status.

Age at peak height velocity (PHV) was used to determine a player's maturity status and suitability for the later maturing programme. There was flexibility provided for inclusion within the programme based upon an individual's birth date. For example, a player born in August could have a lower age at PHV than someone born in September but may be classified as later maturing due to the effect that chronological age has upon maturity classification. See two example players below in Table 2. While Player X was born in

September he had an estimated age at PHV of 14.8 years compared to Player Y who was born in July with an age at PHV of 14.0 years. This resulted in both players having a similar maturity status (i.e., Years from PHV).

Table 2. Age and Maturity Data for two Players

	Date of Birth	Chronological Age (years)	Age at PHV (years)	Years from PHV (years)
Player X	15/09/2003	14.14	14.8	-0.66
Player Y	05/07/2004	13.28	14.0	-0.72

Table 3 summarises the maturity and fitness data collected on all players who visited the club during the 2017-18 season, those players selected to the scholarship squad and the players selected to the later maturing programme. This data shows the differences in size, maturity and some physical performance measures between the three groups. This demonstrates that players selected to scholarship were generally bigger, earlier maturing with greater physical performance than all players assessed, which is consistent with previous research findings in rugby league (e.g., (Till, Cobley, O'Hara, et al., 2010)).

Table 2. Data Comparisons between All, Scholarship and Late Maturer Players

	All	Scholarship	Later Maturing
Age (years)	13.64 ± 0.41	13.69 ± 0.32	13.64 ± 0.30
Height (cm)	165.2 ± 8.5	171.2 ± 6.4	159.0 ± 6.1
Weight (kg)	61.3 ± 13.6	65.5 ± 10.5	50.4 ± 5.4
Age at PHV (years)	14.1 ± 0.7	13.7 ± 0.4	14.6 ± 0.4
Year from PHV (years)	-0.42 ± 0.73	0.02 ± 0.51	-0.96 ± 0.32
Vertical Jump (cm)	27.1 ± 5.9	30.3 ± 5.4	27.7 ± 4.9
Mid Thigh Pull (kg)	104.3 ± 23.7	121.1 ± 21.3	96.4 ± 15.9
Rel Mid-Thigh Pull ($kg.kg^{-1}$)	1.7 ± 0.3	1.9 ± 0.3	1.9 ± 0.3
Agility 505 (s)	2.64 ± 0.17	2.51 ± 0.14	2.59 ± 0.13

At present, fifteen players have been recruited to the later maturing programme. The talent development programme for the later maturing players group includes a fortnightly training session providing rugby player development and high-quality coaching, strength and conditioning coaching and home programme, player and parent education sessions (e.g., nutrition, psychology), fitness testing, individual player feedback and regular monitoring and feedback with parents and community club.

Reflections and Feedback

The reflections on the current later maturing player development programme are positive and this is viewed as a step forward in the club's TIDS as an attempt to address some of the potential challenges associated with talent identification and development in UK rugby league. Overall, 15 players are receiving player development opportunities that would not have been possible without the later maturing programme. This is because under the guidance of the RFL scholarship rules, only a maximum of 20 players can be recruited onto a scholarship programme. Alongside the benefits to players, the Leeds Rhinos club's emerging coaches are also benefiting from leading on the planning, delivery and reflections of their own programme rather than assisting the scholarship head coach. This has benefits for the club's coach development pathway and progression of coaches.

The feedback from players and parents involved on the programme has been positive. Players and parents have appreciated the opportunity to be part of the programme as they were not originally talent identified. Players and parents acknowledge that they were later maturing, which may have impacted upon their selection chances. Players and parents have enjoyed the developmental opportunities provided, the access to facilities, higher-quality coaching and the multidisciplinary support services available (e.g., strength and conditioning). Players and parents suggested that they would like more training and potential competition opportunities in the future. Although the programme is in its early stages, based upon the feedback and reflections of key staff, there are a number of areas for future development for the later maturing programme. These include:

1. The number of players accessing the programme could be increased to provide more player development opportunities to more players and therefore impact upon participation and player development across a large group of players.
2. Although the programme runs fortnightly, there is an opportunity for increased training (i.e., once per week) and possible competition opportunities for players. However, there are resources (e.g., staff time, facility availability) that require consideration.
3. The effectiveness of the programme should be evaluated in relation to whether players are recruited into a scholarship or academy programme (at Leeds Rhinos or another professional club). Monitoring the development of players over a set time period is another factor to consider and whether players develop at an accelerated rate from being on this programme.
4. Although data is used to identify players, these processes can always be evolved. The application of valid and reliable data for informing decision making is important

and whether flexibility should be offered for inclusion/exclusion within the programme needs further discussion.

Conclusion

To summarise, TIDS are common practice within youth rugby league with research evidence suggesting several challenges exist within rugby league. This article has summarised the research evidence and the practices that have been implemented to overcome these challenges including, maturity testing, multiple identification observations and the development of a later maturing talent development programme. Whilst understanding the challenges associated within rugby league, this programme is innovative for providing later maturing players further development opportunities whilst still working within the national governing body's policies and structures alongside resource implications. Further work is required to evaluate and refine the later maturing development programme and provide further opportunities within the sport that may increase participation and development opportunities to more players. Furthermore, it is recommended that other sports and professional clubs consider such strategies for considering maturity status within their talent identification and development processes, hopefully providing more developmental opportunities to more players in the future.

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